

IN THE CLAIMS:

1. (Cancelled)

2. (Currently Amended) A method of analyzing a concentration of a target substance contained in a gas, comprising the steps of:

(a) feeding said gas to a reactor to decompose said target substance and to produce a product gas containing a decomposition product;

(b) discharging said decomposition product gas from said reactor;

(c) providing a quartz oscillator having opposing surfaces each provided with an electrode, at least one of said electrodes being reactable with said decomposition product;

(d) contacting said discharged decomposition product gas from step (b) with said reactable electrode of said quartz oscillator so that said decomposition product is reacted with said reactable electrode; and

(e) measuring a variation in frequency of said quartz oscillator in step (d); and

wherein said target substance is an oxidizable substance selected from the group consisting of an aromatic compound, an aliphatic hydrocarbon, acetylene and an inorganic gas, wherein step (a) comprises oxidizing said oxidizable substance with iodine pentoxide and an oxidizing agent selected from the group consisting of sulfuric acid and pyrosulfuric acid to produce iodine as said decomposition product, and wherein said reactable electrode is made of silver.

4. (Cancelled)

5. (Currently Amended) An apparatus for analyzing a concentration of a target substance contained in a gas, comprising:

a reactor configured to receive said gas and to decompose said target substance, thereby producing a product gas containing a decomposition product, said reactor containing a packed bed of an oxidizing agent supported on silica carrier particles;

a contacting chamber;

a connecting passage extending between said reactor and said contacting chamber for discharging the product gas from said reactor and introducing same to said contacting chamber;

a quartz oscillator disposed in said contacting chamber and having opposing surfaces each provided with an electrode, at least one of said electrodes being reactable with said decomposition product so that said decomposition product is reacted with said reactable electrode when said product gas is contacted with said reactable electrode; and

a device for measuring a frequency of said quartz oscillator; and

wherein said oxidizing agent is reactable with the target substance to yield the decomposition product and is selected from a first combination of iodine pentoxide with sulfuric acid or pyrosulfuric acid, and a second combination of lead oxide with sulfuric acid, provided that said reactable electrode is silver when said oxidizing agent is said first combination and that said reactable electrode is copper when said oxidizing agent

is said second combination.

6. (Cancelled)

7. (Cancelled)

8. (New) A method of analyzing a concentration of a target substance contained in a gas, comprising the steps of:

(a) feeding said gas to a reactor to decompose said target substance and to produce a product gas containing a decomposition product;

(b) discharging said decomposition product gas from said reactor;

(c) providing a quartz oscillator having opposing surfaces each provided with an electrode, at least one of said electrodes being reactable with said decomposition product;

(d) contacting said discharged decomposition product gas from step (b) with said reactable electrode of said quartz oscillator so that said decomposition product is reacted with said reactable electrode; and

(e) measuring a variation in frequency of said quartz oscillator in step (d); and wherein said target substance is a volatile chloroorganic compound, wherein step (a) comprises oxidizing said chloroorganic compound with lead oxide and sulfuric acid to produce hydrogen chloride as said decomposition product, and wherein said reactable electrode is made of copper.